

OBSERVATIONS OF THE GENUS GYNOXYS IN ECUADOR

(SENECIONEAE: ASTERACEAE).

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A large series of Gynoxys specimens collected in Ecuador have recently been received for study from the Botanical Institute, University of Aarhus, and both recognition of new species and refined concepts of older species have resulted. Three species are considered in the present paper, two newly described and one, G. acostae Cuatr. recognized from many additional specimens. Previous collections have been noted of all three species, collections that have often been misidentified in the past.

Gynoxys acostae Cuatrecasas, Feddes Reperit. 55: 129. 1953.

The species has been recognized previously only from the type specimen, Ecuador: Tunguragua: reg. interandina, Sec. Alta de Pasa, 3500 m alt. Oct. 28, 1944. Acosta Solis 8738 (Holotype, F). Various of the specimens recognized below as this species have been determined previously under the names G. fuliginosa (H.B.K.) Cass., G. baccharoides (H.B.K.) Cass., G. buxifolia (H.B.K.) Cass., G. hallii Hieron., and G. cuicohensis Cuatr. It is of interest that Hieronymus (1895) under his description of G. stuebelii, a related species with more cordate leaf bases from Mt. Pichincha in the western range of the Andes, listed as a possible representative of his species a specimen from Mt. Cayambe (Steubel coll. ecuad. n. 114) that is probably the present species. The present species seems to be restricted to the eastern range of the Andes in north-central Ecuador where it seems particularly common along the amazonian side. The specimens seen in this study are as follows: Ecuador: eastern cordillera, 3000-3400 m. May 1930. Rimbach 16919 (US); Napo: Llanganati. Paramo SE of Chosa Aucacocho, between Aucacocho and Pan de Azucar, alt. 3800-3900 m. Øllgaard, Holm-Nielsen, Larsen, Kvist, Jensen & Wium-Anderson 38465 (AAU); Llanganati. North facing slope towards the Río Golpe, just north of Chosa Aucacocho, alt. 3600 m. Øllgaard et al. 38708 (AAU); Llanganati. Ridge between Pan de Azucar and Las Torres de Llanganati, alt. 4050 m. Øllgaard et al. 38580 (AAU); Páramo de Soguillas, near Las

Torres de Llanganati, alt. 3850-4000 m. Øllgaard & Holm-Nielsen 38717 (AAU); Pichincha: Volcán Cayambe, above 4000 m. Little & Paredes 6839 (US); Mt. Cayambe, alt. 13,300-13,833 ft., E. L. Little 6839 (US); Pichincha/Napo: Volcán Cayambe, N slopes, alt. 3750-3850 m. Øllgaard, Brandbyge, Roth & Sperling 34227, 34230 (AAU, US); Tungurahua: Paramo of Minza Chica, elev. 3800 m. Penland & Summers 304 (US).

Gynoxys multibracteifera H. Robinson & J. Cuatrecasas, sp. nov.

Plantae fruticosae 2-3 m altae mediocriter ramosae. Caules subhexagonales inferne teretes distincte striati dense cinereo-farinosi vel minute flavo-lanato-tomentosi. Folia opposita, petiolis 10-10 mm longis subcarnosis distincte striati; laminae coriaceae oblongo-ovatae 4.5-9.5 cm longae et 1.2-3.0 cm latae base abrupte late rotundatae margine integrae anguste reflexae apice breviter acutae supra in nervis primariis anguste distincte pallide lanuginosae aliter glabrae leniter reticulo-exsculptae subtus dense pallide lanuginosae, nervis primariis valde prominentibus recte percurrentibus, nervis secundariis pinnatis basilariter regularibus saepe distaliter dichotomis utrinque 11-17, nervulis non vel vix prominulis. Inflorescentiae in ramis terminales late corymbosae, pedicellis 2-18 mm longis saepe lineari-bracteiferis. Capitula 12-14 mm alta et 7-9 mm lata; bracteae calyculi et subinvolucris lineares 6-7 mm longae et ca. 0.5 mm latae; bracteae involucris 8 late oblongae ca. 7 mm longae et 2-3 mm latae apice obtusae vel breviter acutae superne tenuiter scariosae ad medio longitudinaliter anguste carinatae extus subsparse fulvo-lanugineo-tomentosae inferne densiores. Flores radii 8 in capitulo; corollae flavae glabrae, tubo ca. 4.5 mm longo, limbo elliptico 7 mm longo et ca. 3 mm lato. Flores disci 9-16 in capitulo; corollae flavae 7-8 mm longae glabrae, tubo 2.5-3.0 mm longo, fauce subabrupte longe campanulata 2.5-3.0 mm longo; lobis lanceolatis ca. 1.5 mm longis et 0.7 mm latis; filamenta in partibus superioribus ca. 0.5 mm longa; thecae ca. 1.8 mm longae base ad 0.25 mm caudatae; appendices antherarum anguste ovatae ca. 0.75 mm longae et 0.32 mm latae; rami stylorum apice acuti et penicillato-attenuati. Achaenia ca. 3.5-3.7 mm longa 10-costata base leniter angustiora non abrupte constricta; carpodia annuliformia ca. 0.4 mm lata et 0.07 mm alta, cellulis 4-5-seriatis in parietibus valde incrassatis in marginibus superioribus non prominentibus; setae pappi albi ca. 75 plerumque 6-7 mm longae apice distincte latiores

valdius scabridae. Grana pollinis in diametro ca. 65 μ m.

TYPE: ECUADOR: Azuay: Ridge between El Pan and Guachapala; 7500-9800 ft. elev. Shrub 2 m. Leaves leathery; deep green, nitid above; pale pubescent below. Ray and disc flowers yellow. Sept. 4, 1945. W. H. Camp E-5244 (Holotype, US). PARATYPE: ECUADOR: Azuay: Vía Gualaceo-Culebrillas-Limón. Colecciones en páramo, borde del carretero y bosque, suelo húmido, área húmeda. Altitud entre 3261 a 3444 m. Arbusto de 3 m en borde del carretero, envés de las hojas café, capítulos amarillos. 2 Nov. 1979. J. Jaramillo & F. Coello 1439 (AAU).

The type of the new species was previously determined as Gynoxys baccharoides H.B.K. to which it seems closely related. The two species and G. reinaldi Cuatr. seem to form a natural group of three species all having linear subinvolucral bracts, scarcely enlarged tips of the pappus setae and broadly scarious apical margins of the involucral bracts. All three species also seem to occur in the area of Azuay according to the citations on recent collections and the collection date given by Humboldt, Bonpland and Kunth (1818) for G. baccharoides. The three species differ from each other by the density of the pubescence on the involucre, none in G. reinaldi, very dense in G. baccharoides and of intermediate density in G. multibracteifera. The new species has the linear subinvolucral bracts much more numerous and longer than those of G. baccharoides. The tomentum is thicker on the undersurfaces of the leaves in G. baccharoides as well as on the involucral bracts, obscuring the secondary veins. Gynoxys multibracteifera is close to the peruvian G. nitida Muschl., but differs by the larger heads, longer peduncles with a greater number of linear bracteoles, and the compact indument on the branchlets and abaxial sides of the leaves. In addition, the type of G. nitida has broad, elliptic ray corollas that are deeply 3-lobed.

Gynoxys regis H. Robinson & J. Cuatrecasas, sp. nov.

Plantae frutescentes vel arborescentes 7-4 m altae mediocriter ramosae. Caules subhexagonales dense flavo-velutini. Folia opposita, petiolis 7-13 mm longis distincte striatis trans nodos anguste contiguus; laminae oblongae in foliis primariis 12-15 cm longae et 4.7-5.0 cm latae in foliis secundariis plerumque 4-6 cm longae et 1.2-2.0 cm latae base abrupte late vel anguste rotundatae margine integrae

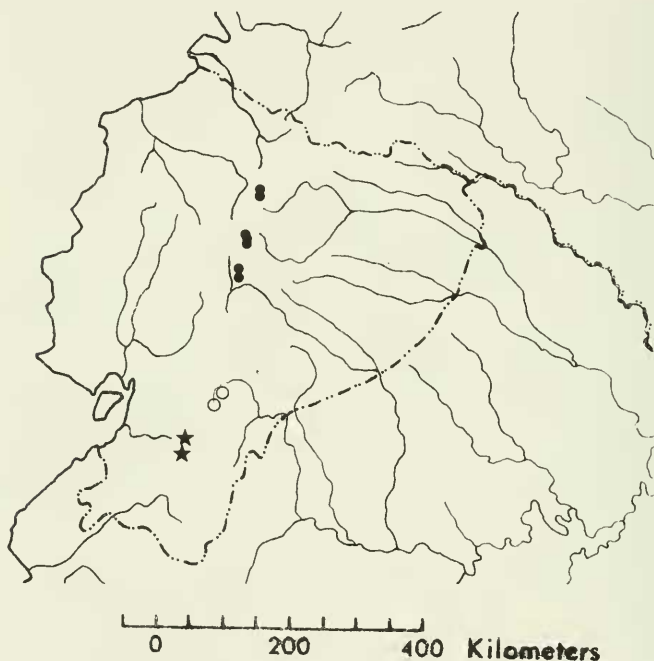
vel in foliis majoribus remote reflexe mucronato-denticulatae apice breviter acutae supra glabra in nervis et nervulis reticulato-exsculptae subtus dense flavide tomentosae, nervis primariis prominentibus valde et recte percurrentibus, nervis secundariis pinnatis fere ad marginem sensim irregulariter flexis vel ramosis utrinque ca. 8-10, nervulis prominulis. Inflorescentiae in ramis terminales pyramidato-thyrsoideae in ramulis interdum breviter racemosae terminaliter corymbosae, pedicellis 1-5 mm longis dense pallide velutinis. Capitula 9-10 mm alta et 5-7 mm lata; bractee calyculi et subinvolucri minute triangulares ca. 1.5 mm longae et 1 mm latae; bractee involucri 8 valvatae 5-7 mm longae exteriores 1.0-1.5 mm latae interiores in marginis scariosis ad 2 mm latae apice obtuse vel breviter acutae extus in medio valde prominentes dense pallide velutinae. Flores 7-10 in capitulo disciformi; corollae flavae 7.5-8.0 mm longae glabrae, tubo 3-4 mm longo, fauce abrupte campanulata ca. 2 mm longo, lobis anguste oblongis vel sublinearibus 2-3 mm longis et ca. 0.7 mm latis; filamenta in partibus superioribus ca. 0.6 mm longa; thecae antherarum ca. 2 mm longae base ad 0.4 mm caudatae; appendices antherarum anguste ovatae 0.4-0.6 mm longae et 0.20-0.25 mm latae; rami styolorum apice rotundati truncati papillato-fimbriati ad medio penicillate pilosi. Achaenia ca. 2.7 mm longa 10-costata base leniter angustiora non abrupte contracta; carpodia breviter cylindrica. 0.45 mm lata et 0.15 mm alta, cellulis ca. 6-seriatis in parietibus valde incrassatis in marginibus superioribus non prominentibus; setae pappi albae ca. 60-95 plerumque ad 6-7 mm longae apice vix latiores, scabris apicalibus leniter densioribus. Grana pollinis in diametro ca. 62 μ m.

TYPE: ECUADOR: Azuay: 30 km S of Cumbé on the road to Saraguro at an elevation of 9800 ft. Shrub 2 m tall. Florets yellow. 26 Jan. 1979. R. M. King & E. Almeda 7804 (Holotype, US). PARATYPE: ECUADOR: Loja: Carretero Saraguro-Tenta, colecciones en borde del carretero, bosque secundario, campo abierto, pajonal y ciénegas, suelo con terreno húmfero y rojo. Altitud entre 2500 a 2800 m. Arbusto de 4 m en borde del carretero, envés de las hojas café claro, capítulos color amarillo. 16 Sept. 1980. J. Jaramillo 3827 (AAU).

The new species is particularly notable for the heads without ray flowers, the narrow and long corolla lobes, and the tips of the style branches that are rounded to truncate with only a penicillate central projection of hairs. The tip of the style in

Gynoxys is usually acute, but scattered members of the genus such as the new species as G. vargasiana Cabrera and G. (Scrobicaria) ilicifolia, have truncate styles. Most other rayless species in Ecuador tend to have involucre bracts glabrous on the outer surface.

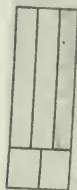
Hieronymus, G. 1895-1896. *Plantae Stuebelianae novae*. *Botanischer Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie*. 21: 306-378.



Dots - Gynoxys acostae Cuatr.

Circles - G. multibracteifera n. sp.

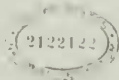
Stars - G. regis n. sp.



PLANTS OF ECUADOR

M. H. ROBINSON

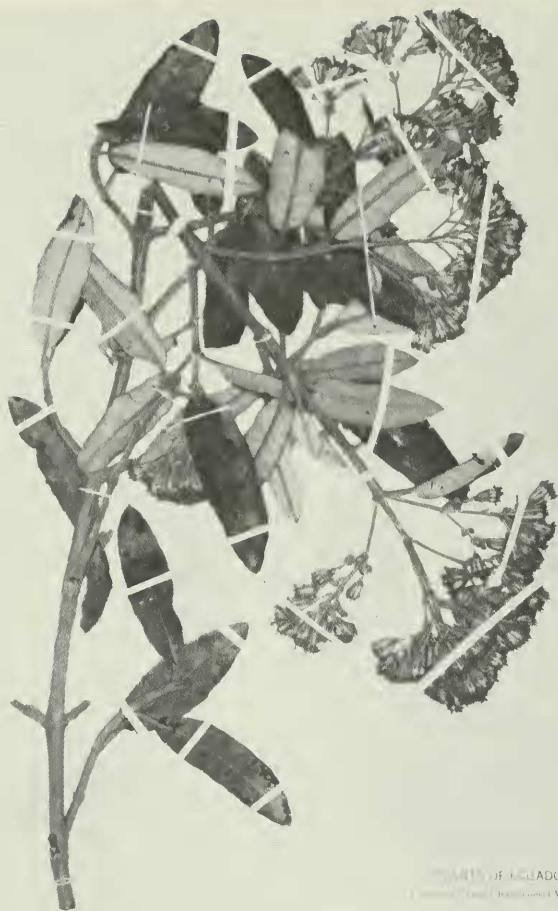
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PHOTOGRAPH BY VICTOR E. KRANTZ
 Distributed by the New York Botanical Garden

Gynoxys multibracteifera H. Robinson & J. Cuatrecasas,
 Holotype, United States National Herbarium. Photos by Victor
 E. Krantz, Staff Photographer, National Museum of Natural
 History.



DEPARTMENT OF FLORIDA
 UNIVERSITY OF FLORIDA

DR. J. M. ROBINSON
 UNIVERSITY OF FLORIDA

January

Locality: 20 km S of Canbe on the road to Saraguro at an elevation of 9800 ft.

Shrub 2 m tall. Flowers yellow.

UNITED STATES

2550507

NATIONAL HERBARIUM

Herbarium of the University of Florida, Gainesville, Florida, U.S.A.

Gynoxys regis H. Robinson & J. Cuatrecasas, Holotype,
 United States National Herbarium.



Enlargements of heads. Top. *Gynoxys multibracteifera*.
Bottom. *G. regis*.